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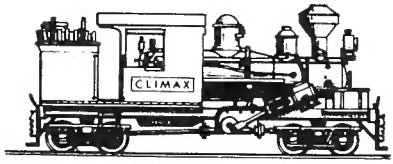

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Whilst every effort is made to ensure the accuracy of articles published in *Light Railways* errors may creep in. Additional information is being discovered all the time, and this sometimes contradicts previous information.

If you see any errors, or can add information, please contact the editor, and so help us to record the full history of Australia's light railways.

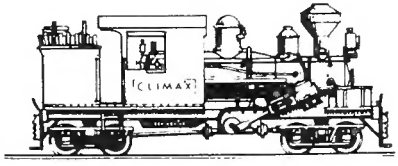
Historical references to sums of money in *Light Railways* are in Australian pounds (£). One pound equalled two dollars on changing to decimal currency in 1966.

Articles and news items are always welcome. It greatly assists the editors if they are typed or written on one side of the paper only and double spaced.

Recommended reading:

SAWDUST AND STEAM, Norm Houghton. A history of the railways and tramways in the east Otways, including Forrest, Apollo Bay, Wye River, Kennett River, Lorne and Barwon Downs. 106 pages, 12 plans and maps, 60 photographs. Soft cover $4.20
Hard cover $6.00

LAHEY'S CANUNGRA TRAMWAY, R.K.Morgan. A history of Queensland's best known timber tramway, which had one Climax and three Shay locomotives. 24 pages, 21 photographs, four plans and maps. $1.20



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Locomotives of Wallaroo and Moonta

by Robert Butrims

Probably one of the most neglected areas of light railway research is the history of the tramways of the Wallaroo and Moonta district of South Australia. The following article is not intended to be a complete history of the tramways but rather some notes on the locomotives that worked for the Wallaroo and Moonta Mining and Smelting Company, and their respective fates.

Various theories have been presented on several locomotives together with as much evidence as possible to support these theories, but there are some major gaps yet to be filled. Perhaps publication of this article will bring forward more information that will allow a more complete history of these locomotives to become known. Only the locomotives of the Wallaroo and Moonta Mining and Smelting Company and its predecessors have been recorded here and not the various other locomotives that operated in the area.

Railway construction in the area of Wallaroo, Kadina and Moonta started when the 'Kadina and Wallaroo Pier and Railway Company' built a 5ft 3in gauge horse operated tramway from Wallaroo to Moonta in 1867. An earlier line from Wallaroo to Kadina had been built in 1862. This line formed the basis for horse trams that ran in the district carrying passengers as well as produce from and materials for the copper mines. The Kadina and Wallaroo Pier and Railway Company was sold to the South Australian government for £90,000 on the first of March 1878 and became part of the state railways system.[1]

Originally the Wallaroo copper mines and the Moonta copper mines were separate ventures. Both the Moonta Mining Company and the Wallaroo Mining Company appear to have constructed 5ft 3in gauge lines in their mines during this period and in 1885 the Moonta Mining Company purchased a 5ft 3in gauge Dubs 2-4-0 side tank locomotive and the Kitson power unit from a Rowan steam rail car, both from the Glenelg and South Coast Railway[2]. The Kitson appears to have been used as a locomotive (presumably for shunting purposes), and is described as having 'only four wheels and a small vertical boiler in the centre'[3]. The passenger body of the rail car was sold independently to the engine unit.

A third broad-gauge locomotive was acquired in 1889. It was built by John Fowler and Company and was an 0-4-2 saddle tank locomotive.

It had a very large footplate which had a seat across the rear for passengers.

A fourth locomotive arrived allegedly *with* the Fowler locomotive [3] This was the supposed Beyer, Peacock 0-4-0 of 2ft 9in gauge that became known as *Capt'n 'Ancocks Pig* and eventually went to Forrest in Victoria.

In 1890 the two mining companies amalgamated to form the Wallaroo and Moonta Mining and Smelting Company, the locomotives coming under the ownership of the combined company. In 1892, after much haggling between the company and the railways, the line from Wallaroo to Moonta was converted to 3ft 6in gauge. It was originally intended to swap the company's broad-gauge loco's for S.A.R. narrow gauge locos, however, this did not eventuate[4] and the company was left with three broad-gauge locos in what was now narrow-gauge territory.

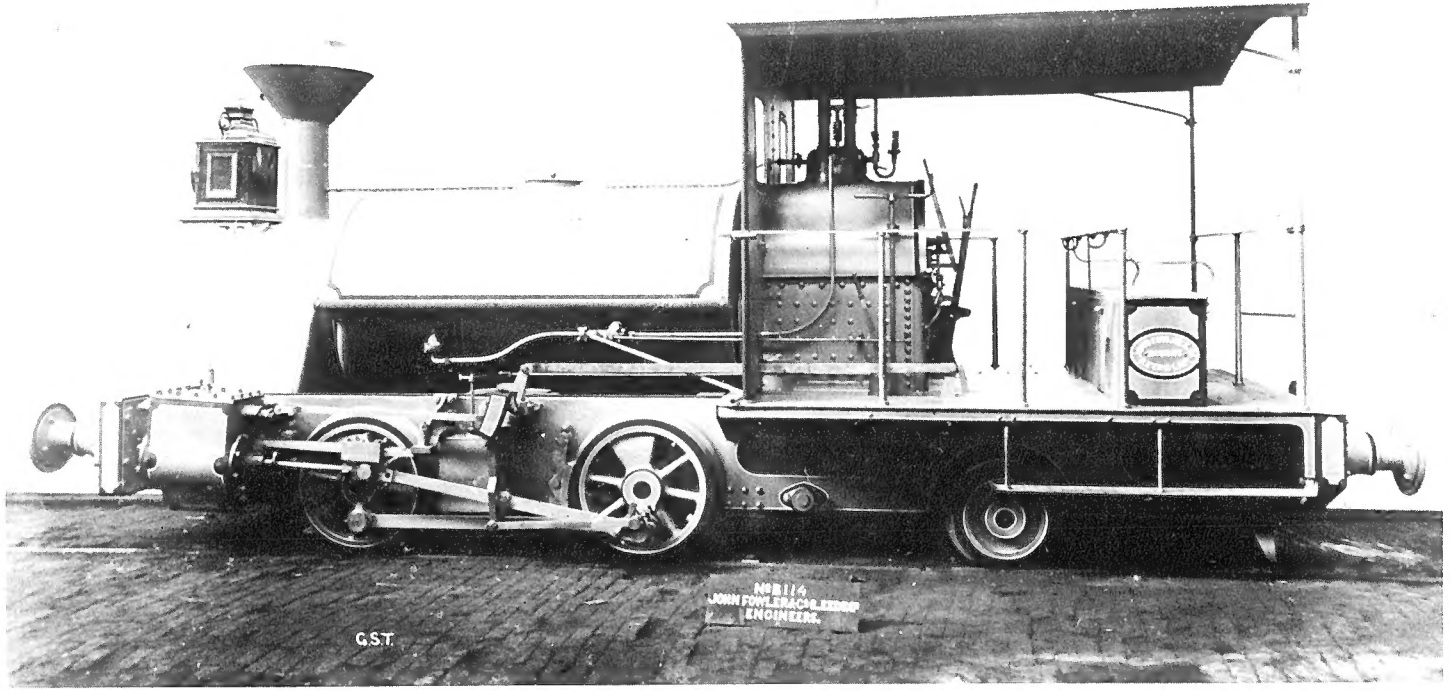
With these thoughts in mind let us now look in detail at these first four locomotives owned by the company.

The first engine, the 2-4-0, was built by Dubs and Company in 1878, it having the builder's number 1196. It was one of two identical locomotives owned by the Glenelg and South Coast Railway, the two being numbered 1 and 2 (B/N 1197) on that railway. When the railway closed, No. 1 was sold to the Wallaroo and Moonta company and No. 2 was sold to the Adelaide Glenelg and Suburban Railway Company and then passed into various hands until it eventually became S.A.R. number 155. It was scrapped around 1905 [5]. Meanwhile, No.1 ran as a broad-gauge engine at Moonta until converted to 3ft 6in gauge in the company's Moonta workshop probably in the early 1890s.[6]

It is reasonable to assume that this regauging took place during the 1893-1894 period as plans were in hand for the reconstruction of the company's siding to 3ft 6in gauge in early 1892[7].

Photographs of this engine as 3ft 6in gauge indicate that at some stage of its life it was fitted with a boiler identical to those fitted to the Hudswell Clarke 0-4-2's which later operated for the company. This boiler was without doubt built by Hudswell Clarke, probably as a spare for the Hudswell Clarke engines. During its life the engine retained its old road number one, and it worked until the mines and smelters closed in 1923. Photographic evidence seems to indicate that the engine spent nearly its whole life working at the Moonta mines. The locomotive was put up for disposal with the rest of the company's assets in February 1924. Basic dimensions of the engine in its final form are as follows: cylinders 9in diameter x 15 in stroke, weight 14 tons, working pressure 160 lbs/sq. in., driving wheel diameter 36in, leading wheel diameter 24in. The locomotive was capable of hauling 210 tons on the flat, 56 tons on a 1 in 50 grade and 105 tons on a 1 in 100 grade[8].

The second locomotive, if it can be called that, is the engine unit from the Rowan steam rail car formerly owned by the Glenelg and South Coast Railway. The engine unit was built by Kitson and Company. It can be assumed that the engine unit arrived at the same time as the Dubs. Little is known of its operation but apparently it was not a success as it is recorded that 'every time the driver blew the whistle the engine stopped'[9].



John Fowler builder's photograph of B/No. 6026 of 1889; a 5ft 3in gauge 0-4-2ST. Note the seat at the rear for passengers.

Front cover Hudswell Clarke B/No. 646 of 1903 at work on the Geelong Steam Preservation Society's railway at Belmont Common in 1972.

Since it is described as a vertical-boilered 0-4-0 its use must have been very limited, however, it was converted to 3ft 6in gauge. After what must have been a very short life it was relegated to the Moonta scrap heap where, if what is written is correct, some parts from it were used to build a new locomotive [10]. When I first read of this rebuilding I tended to doubt it, believing it to be confused with another rebuilding that took place. However a recently discovered photograph shows a vertical-boilered 0-4-0 described as a 'very locally made steam engine' . The engine appears to have had wooden-wheel centres which would tend more to Australian backyard practice than an English engineering firm. However the photo does show a distinctive oval builder's plate similar to that used by Kitsons. Was the Kitson rebuilt or is this yet another locomotive that appeared? The engine in the photo appears to be too big to be the Kitson as used in the railcar. Whatever happened to the Kitson, it disappeared from the scene before the mines closed and did not appear on the disposal list.

The third locomotive to arrive is the Fowler 0-4-2 saddle tank that arrived in 1889. It carried Fowler's builders number 6026 of 1889. This engine was a long low saddle tank engine with an enormous cab. When new it had a spark arrestor type chimney and no cab side sheets. Reference to this locomotive was made in a brief history of the company's locomotives published in a Moonta newspaper in 1940. This described a Fowler locomotive with 'a spark arrestor and a seat at the rear obviously meant for passengers. It had a top but open sides'.

Mention is also made of its 'spacious footplates'. Once this brief history was found a search of remaining Fowler records in England was made and eventually it was found to be B/No.6026. A builder's photograph of the engine is published with this article.

Little is known of the Fowler loco after it arrived at the mines. It was probably converted to 3ft 6in gauge with the other engines however, some very unusual things probably happened to it at a later date which we shall look into shortly.

The fourth engine requires no introduction to *Light Railways* readers as it has become rather famous in recent years. This engine was a small 0-4-0 with a marine type boiler, possibly built by Beyer, Peacock. Beyer, Peacock certainly built two similar locomotives but the vital evidence of its construction is lacking. Even in the late 1800s it was not unknown for a builder to steal, borrow or buy plans for a locomotive that would suit his purposes. Identical copies have been built before so it could have happened in this case (another example of this practice is the Krauss that is not a Krauss, now preserved in a park at Wallaville, Queensland.)

Getting back to our 0-4-0, it was of 2ft 9in gauge and ran on a line of its own. 'It used to run a very short trip between Taylor's shaft and Richman's plant and there was no other track it could use'.[11] From this it is fairly certain that the engine had its own 2ft 9in gauge line for quite a time before it was converted to 3ft 6in gauge.

Once converted to 3ft 6in gauge it was probably used as a shunting engine. Photos show it at the Moonta mines, however it may have been used at the Wallaroo Smelting Works where a pair of tiny Hudswell Clarke 0-4-0's later worked. Whatever its use it was eventually sold to Henry and Sons sawmillers at Forrest in Victoria in 1909 where it was used on timber tramways.

Before leaving this engine it is worth mentioning that it appears to have been misnamed in latter years. According to the article on the locos in the *People's Weekly* in 1940 it was called 'Billy Wearne's lokey', because Billy Wearne was the driver [12]. The title Capt'n 'Ancocks Pig is supposed to have been given to the Dubs loco because when the drivers refused to give the local children rides on the engine 'The refusal of their importunate usually drew forth remarks about "Capt'n 'Ancocks Pig" an irreverant description of a most worthy locomotive, which owed its origin to the shrill squeal of its whistle'[13].

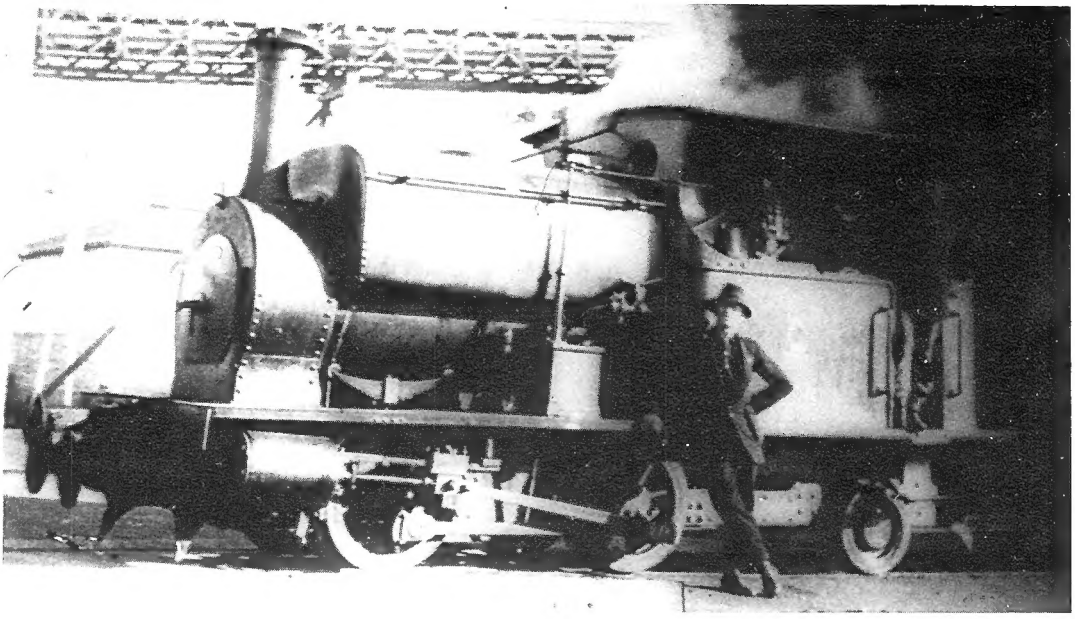
1892 marked the arrival of the first of a new fleet of locomotives built by Hudswell Clarke and Company that were to become known as the 'Wallaroo' type. The first arrival was Hudswell Clarke B/No.394 of 1892. This engine was an 0-4-2 saddle tank fitted with cylinders 10 in. in diameter by 14 in. stroke. Driving wheels were 30 in in diameter and the trailing truck wheels were 22in. in diameter. The cylinders were slightly inclined and Stephenson valve gear was fitted. Working pressure was probably 150 or 160 p.s.i. (It had been reduced to 125 p.s.i. by the time the engine was sold in 1923). It was supposed to be able to haul 210 tons on the flat and 56 tons up a 1 in 50 grade when working on the reduced pressure [14]. The locomotive had the name *Wallaroo* painted across the side tanks and was numbered 3. It left the Hudswell Clarke works at Leeds on 4 June 1892. The agents for the locomotive were James and Shakespeare who were agents for all Hudswell Clarke locomotives that came to the company[15].

A further locomotive of this type was purchased in 1900, this being named *Moonta* and numbered 4, being B/No.550 of 1900. If left the works on 8 March 1900. The purchase of this second locomotive indicates that the type was ideal for the kind of work that was required from them. Over the next few years several other 'Wallaroo' types were purchased.

B/No. 609 of 1902 became No.5 and was the first unnamed engine [16]. B/No. 628 and 629 arrived in late 1902 or early 1903. These were not 'Wallaroo' types but small 0-4-0 saddle tanks numbered W.S.W. No.1 and W.S.W. No. 2 [17]. The W.S.W. stood for Wallaroo Smelting Works which was associated with the Wallaroo and Moonta Mining and Smelting Company. The two engines were used around the smelters.

At five tons weight they must have been about the smallest 3ft 6in gauge loco's built. Cylinders were a tiny 6in diameter by 10 in stroke. The boiler was steel with a copper firebox and feed water was supplied by one injector and one pump. Boiler was 140 p.s.i. in 1923 but was probably 160 p.s.i. in 1902. The wheels were really only oversize casters at 20½ in. diameter. The engines were cabless.

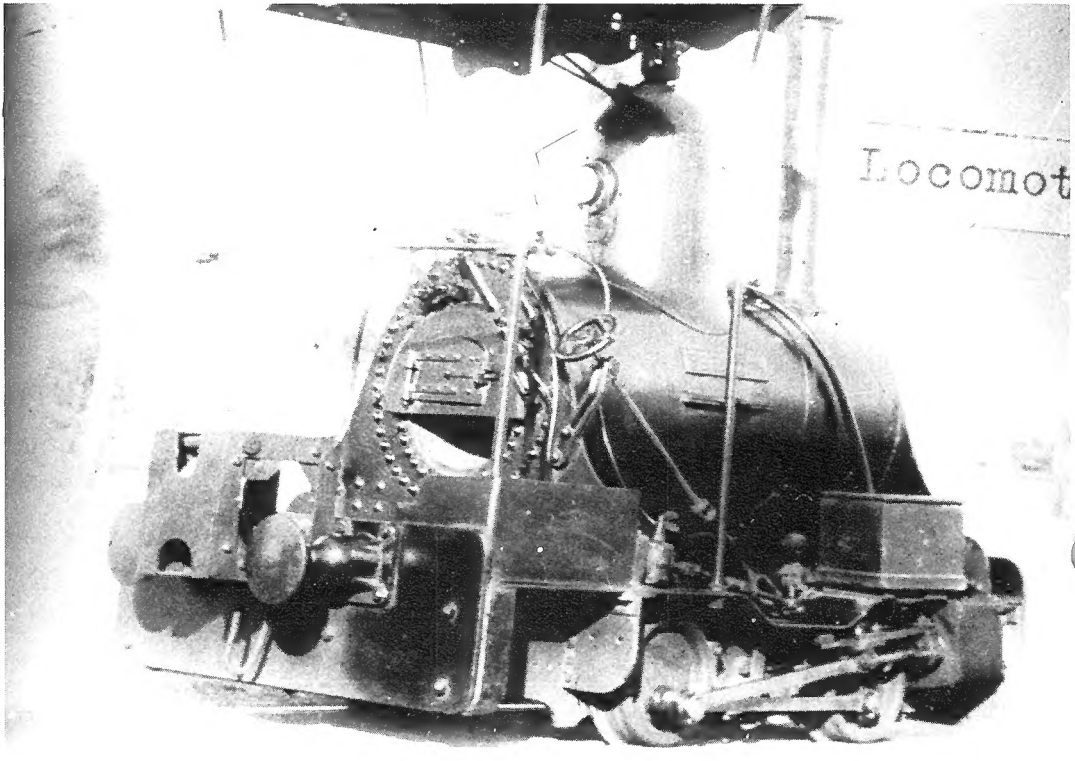
Further 'Wallaroo' types arrived as follows, all these being fitted with 11in x 15in cylinders instead of 10in x

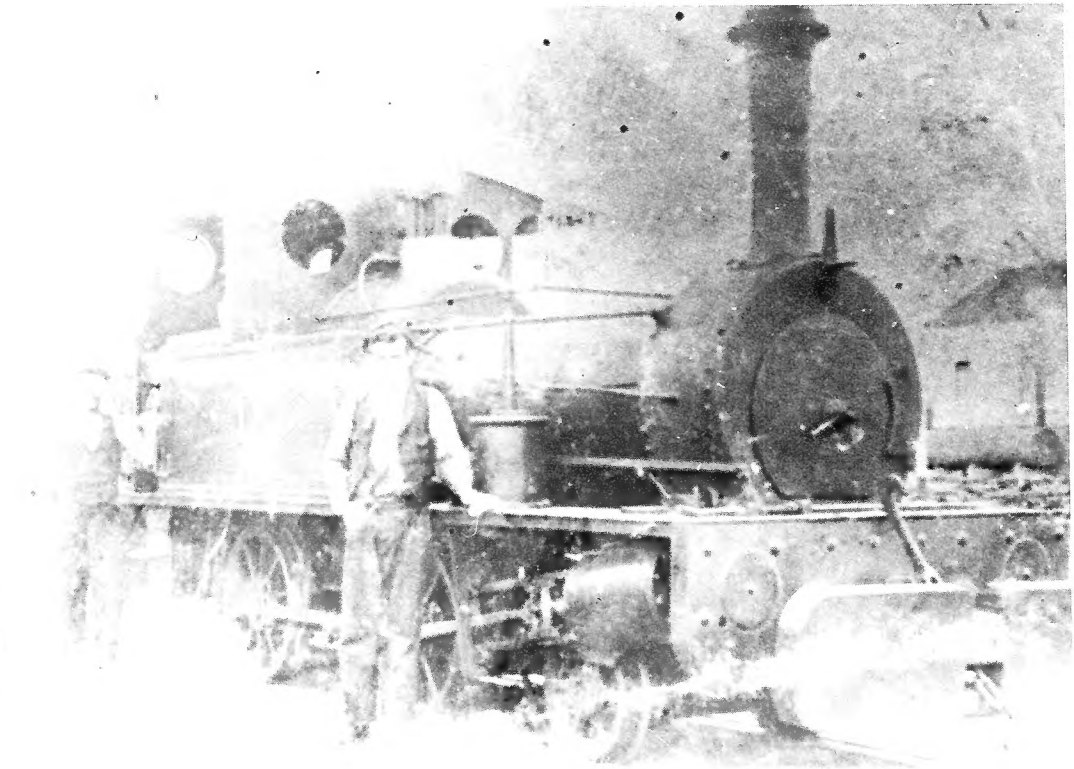


Above No. 2, at 3ft 6in gauge 0-4-2ST which appears to have been rebuilt using the frame, wheels and motion of the 5ft 3in gauge Fowler locomotive.

Below The so-called Beyer Peacock 0-4-0. A nameplate can be seen on the side of the boiler. Although the photo is not clear enough to read the name, faint traces of the letters can be seen. The name *Peerless* has been suggested.

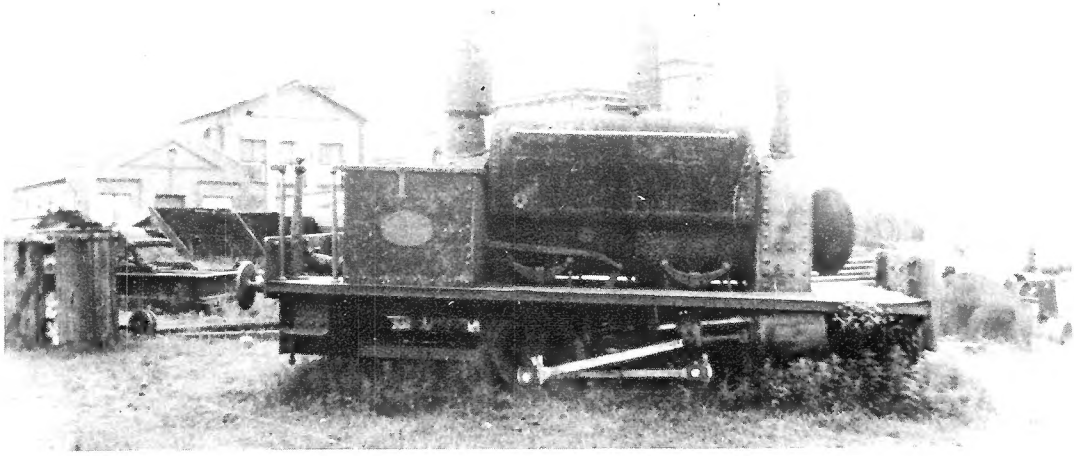
Both Photos: J. Harvinson Collection





Above The Moonta Dubs rebuilt to 3ft 6in gauge and fitted with a Hudswell Clarke boiler.

Below Hudswell Clarke B/No. 629 (ex Wallaroo & Moonta No. 11) in Morrison & Bearby's yard at Newcastle, c.1930.
Both photos: D. Beck collection.



Glenelg and South Coast Railway No. 2 (Dubs B/No. 1197) was the sister of No. 1, the Dubs that went to Moonta. Photo: J. Harbinson collection.

14in cylinders [18] The first of the new batch was the now famous only survivor B/No. 646 of 1903, followed by B/No. 774 of 1906, B/No. 777 of 1906 and B/No. 791 of 1906. B/No. 803 of 1907 arrived the next year being the last of the class to come to Australia.

This group of engines were numbers 6,7,8,9 and 12 on the company's roster.

Strong sturdy little shunters, the 'Wallaroos' were ideal light industrial locomotives. Simple in construction, easy to maintain, they were typical of the products of Hudswell Clarke that were built to last a lifetime. All eight 'Wallaroos' lasted until the close of mining and were sold to see much more use in other states.

The one remaining engine left to describe is No. 2, an engine which until recently was believed to be a Hudswell Clarke, this, together with the two 0-4-0's making a mass of confusion of the published Hudswell Clarke list.

As the construction of this locomotive may be debated in some circles it is worthwhile to go into some detail about how the information on its construction came to light.

The first knowledge of the construction of No. 2 came from Bruce McDonald of Goulburn who was told by Oswald Pryor (author of *Australia's Little Cornwall*)that an engine was built at Moonta. While going through a pile of photographs of the Wallaroo and Moonta engines we came across a photo of No.2 at Woy Woy in N.S.W. Close inspection revealed that the engine looked a little different to the other 'Wallaroo' type engines in respect to frame, wheels, motion and cab, etc.

A visit to the Wallaroo and Moonta district several months later revealed that many local residents knew of the construction of a locomotive at Moonta but no one could give vital information about how or when the engine was built. Unfortunately, time did not allow me to follow up the small amount of information I obtained, but more details may come to light when a further visit to Moonta is made.

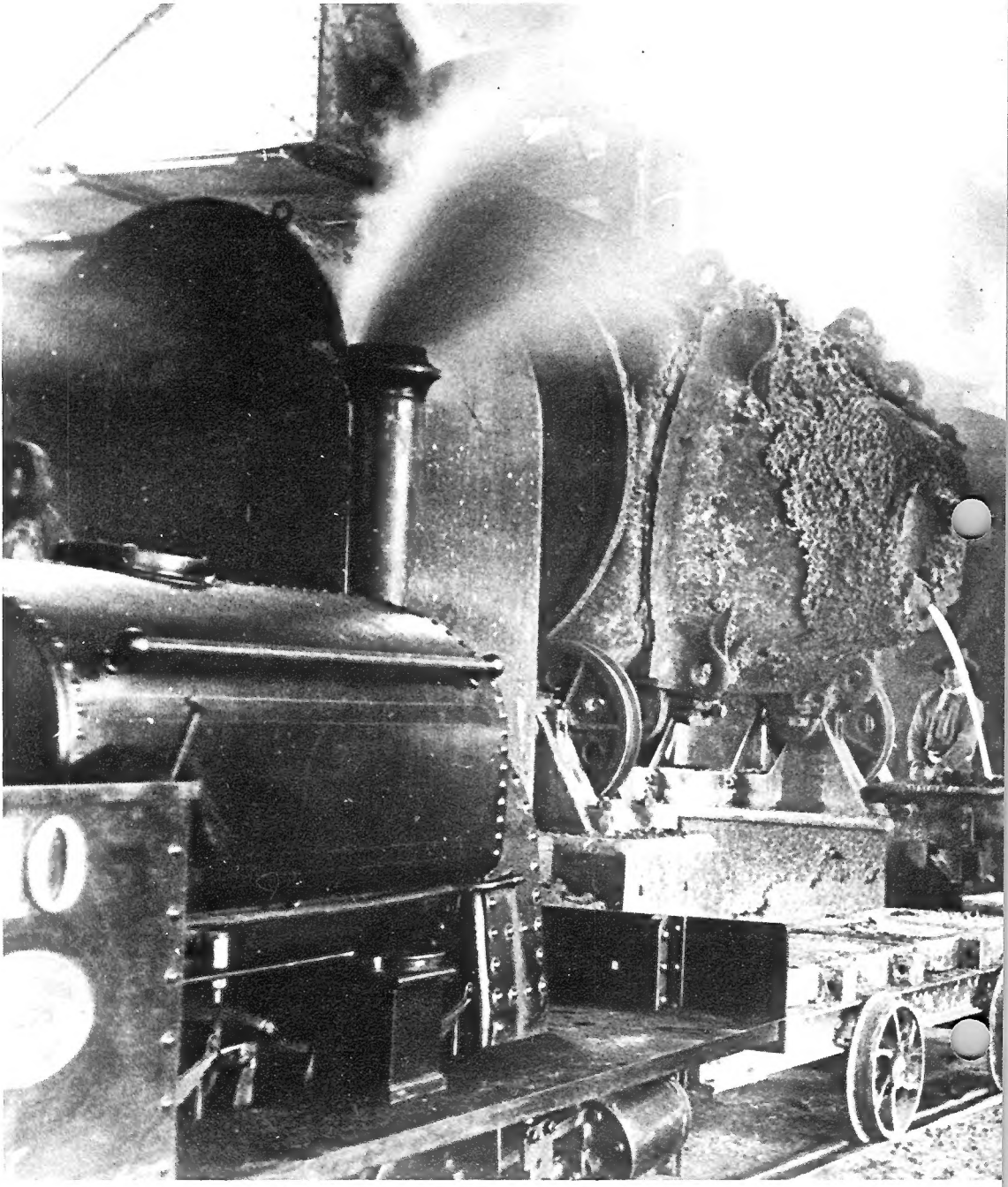
Further information came from the *People's Weekly,* the local newspaper when in August, 1940, an article by a person calling himself 'Old Hand' wrote of the vertical boilered 0-4-0, 'After lying in the scrapyard for years, such parts as could be used were incorporated in a complete locomotive built by the mechanics in the mines workshops'.

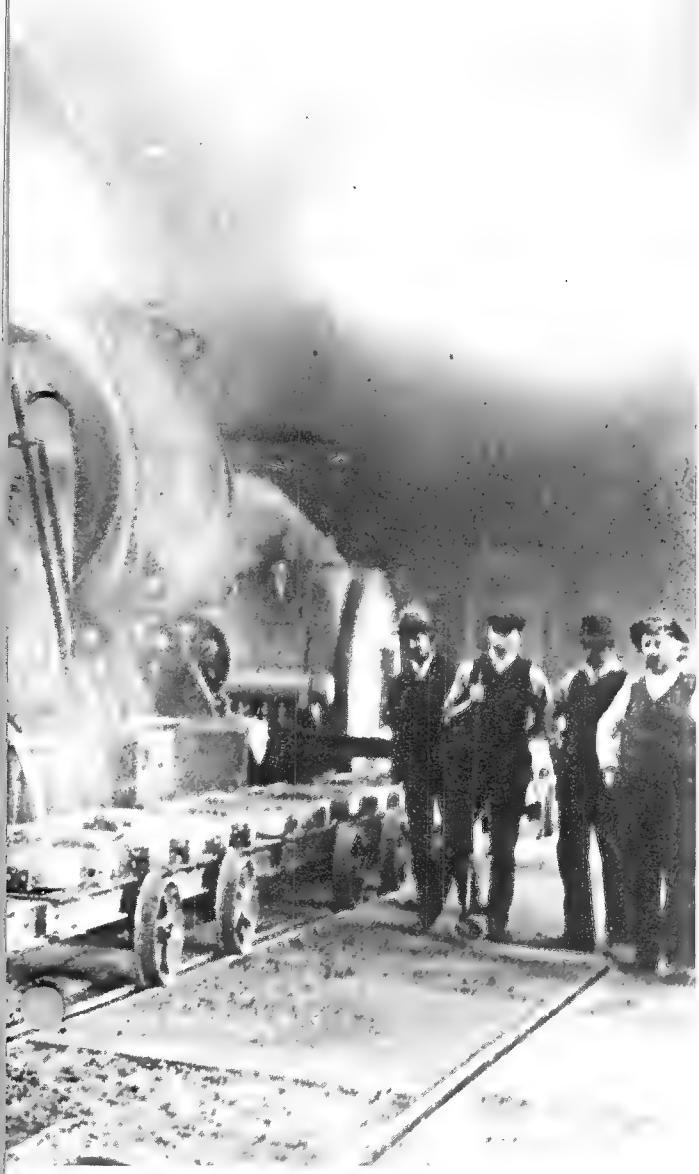
Admittedly this refers to the Kitson, however, it appears certain that a locomotive was built at Moonta workshops. Certainly the workshop had the facilities to build a loco since they built their own generators there and also 'Old Hand' writes of the workshops 'there was not a part that could not be manufactured at the local workshops'.

A comparison of No.2 with a 'Wallaroo' type engine can be made from the photographs accompanying this

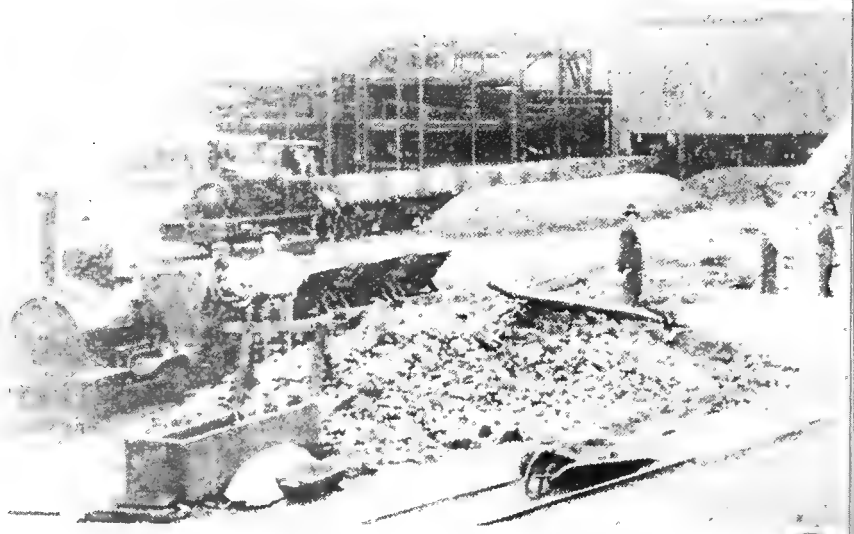
LOCOMOTIVES OF THE WALLAROO & MOONTA MINING AND SMELTING COMPANY LIMITED

Engine Number	Builder	Builder's Number	Previous Owner	Arrived at W & M	Disposed by W & M	Sold to	Remarks
1	Dubs & Co.	1196 of 1878	Glenelg & South Coast Railway	1885	1924	Mackenzie & Co, Newcastle	Originally 5 ft 3 in gauge. Converted to 3 ft 6 in gauge and reboilered with a Hudswell Clarke boiler. Sold by Mackenzie & Co to Morrison & Bearby in 1930 and scrapped.
2	Wallaroo Workshops				1924	Mackenzie & Co, Newcastle	Probably rebuilt from Fowler loco. Sold by Mackenzie & Co. to quarry in Woy Woy, NSW and sold to Morrison & Bearby in 1931 and scrapped.
3	Hudswell Clarke	394 of 1892	Arrived new	1892	1924	Hampden & Wheeler	
4	Hudswell Clarke	550 of 1900	Arrived new	1900	1924	Federal Capitals Commission, A.C.T.	From Canberra to Associated Blue Metals Ltd who used it to 1938. Scrapped 1955. Boiler to steam punt.
5	Hudswell Clarke	609 of 1902	Arrived new	1902	1924	S.E.C. Vic.	Scrapped late 1930s.
6	Hudswell Clarke	646 of 1903	Arrived new	1903	1924	Australian Portland Cement Co. Fyansford Vic.	To Geelong Steam Preservation Society, 1968
7	Hudswell Clarke	774 of 1906	Arrived new	1906	1924	As above	Scrapped 1964
8	Hudswell Clarke	777 of 1906	Arrived new	1906	1924	As above	Scrapped 1964
9	Hudswell Clarke	791 of 1906	Arrived new	1906	1924	As above	Scrapped 1964
10	Hudswell Clarke	628 of 1902	New for Wallaroo Smelting Works	1902	?	?	Disposal unknown
11	Hudswell Clarke	629 of 1902	New for Wallaroo Smelting Works	1902	1924	Mackenzie & Co. Newcastle	Sold by Mackenzie & Co Morrison & Bearby, c.1930 and scrapped.
12	Hudswell Clarke	803 of 1907	Arrived new	1907	1924	S.E.C. Vic.	Scrapped late 1930s.
?	John Fowler	6026 of 1889	Moonta Mining Co.	1889	-	-	Probably rebuilt into No.2
?	Kitson	?	Glenelg & South Coast Rly.	1885	?	?	Converted from 5 ft 3 in gauge to 3 ft 6 in gauge. May have been rebuilt.
?	Beyer Peacock?	?		1889	1909	Henry & Sons, Forrest, Vic.	Converted from 2 ft 9 in gauge to 3 ft 6 in gauge.



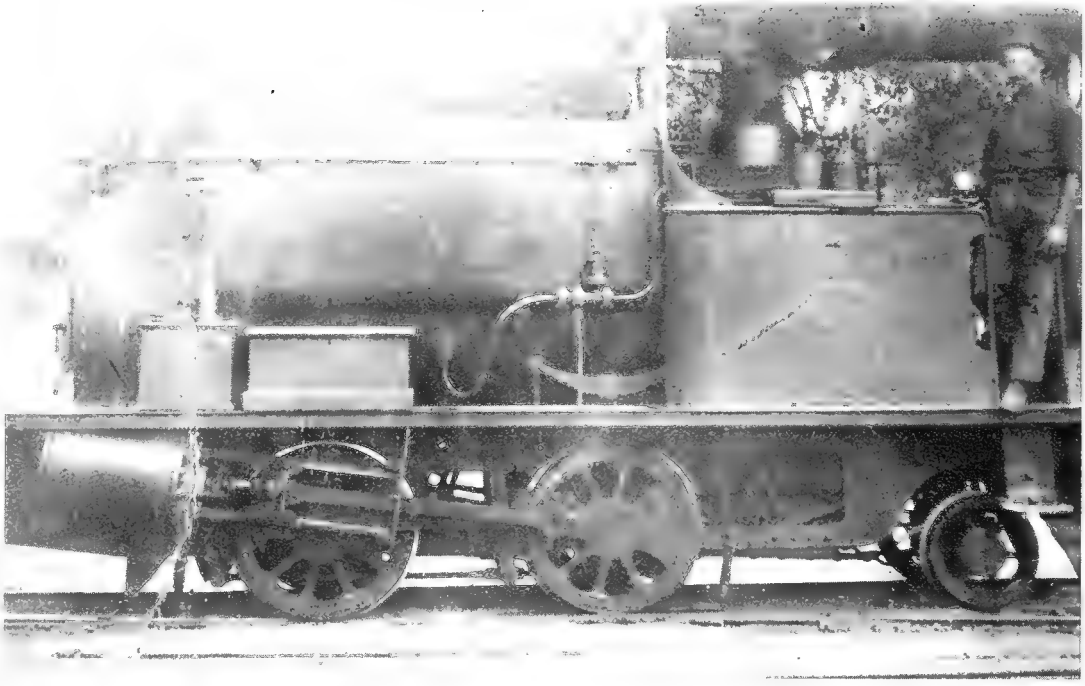


No. 10, Hudswell Clarke 0-4-0ST B/No. 628 at work in the Wallaroo smelters. Photo: State Library of South Australia.



The so-called Beyer Peacock 0-4-0 (in foreground) and a 'Wallaroo' type Hudswell Clarke at the Moonta Mines. Photo: D. Beck collection.

Below No. 7 'Wallaroo' type Hudswell Clarke B/No. 774 of 1906 during its days at Wallaroo and Moonta.
Photo: J. Harbinson collection.



article. Comparing the photographs, the basic similarity can be clearly seen. Upon examination however, we can see that the boiler (which is a Hudswell Clarke boiler the same as those fitted to the 'Wallaroos') is set much higher. This can be clearly seen by noting the height of the smokebox door compared with the 'Wallaroo'. Looking below the footplate, the cylinders are not inclined as much, a single bar crosshead is fitted, the side rods are thinner, the wheels are of different design, the trailing truck has a solid wheel rather than a spoked wheel. Also note the handrails and about 12in - 18 in of frame that can be seen behind the cab compared with none on the back of the 'Wallaroos'.The list could go on for quite a while but when you get down to counting rivets it becomes apparent that the engine is not a Hudswell Clarke.

Now compare the photo of No.2 with the photo of the Fowler loco. Obviously, the frame has been shortened, but the trailing truck wheel is of the same type, crosshead and slide bar are the same, the frame is of the same construction and the cut away portion next to the firebox of the Fowler is visible on the frame of No.2 Side connecting rods are of the same type and the pattern of rivets behind the driving wheel appears to be the same.

From this photographic evidence, I believe that for some reason, the Fowler locomotive was rebuilt using the frame, wheels and side rods from the Fowler and a boiler and cylinders for a Hudswell Clarke (possibly a spare set supplied with the 'Wallaroos') and then fitting a cab and tank as close as possible in appearance to those fitted to the 'Wallaroos'. What resulted was a locomotive that appeared to be a 'Wallaroo' and was standard in many of their features. The evidence appears to be overwhelming.

Mining at Wallaroo and Moonta collapsed in the early 1920s. The mines closed in the copper slump of 1923 and the assets of the company were disposed of. The general selling agents for the disposal of the company's assets wereW.J. Spencer and Company whose office was at Union House, 243-7 George Street, Sydney [19]. Correspondence between this company and the Australian Portland Cement Company is in Geelong Steam Preservation Society archives.

Spencer and Company offered eleven locomotives to the Cement Company. These were No.1 (the Dubs), No. 2 (called a Hudswell Clarke), 3 to 9 (all Wallaroo type Hudswell Clarkes), 11 (an 0-4-0 Hudswell Clarke) and 12 (another Wallaroo). No.10, the other Hudswell Clarke 0-4-0, is not listed and may already have been sold or else disposed of some time earlier.

The Dubs (No.1), the Fowler rebuild (No.2) and the surviving 0-4-0 Hudswell Clarke (No.11) were sold to dealers Mackenzie and Company of Newcastle where they were used on a reclamation project. From there, No. 2 was sold to a quarry in Woy Woy, N.S.W. All three eventually finished their lives in the hands of Messrs Morrison and Bearby of Newcastle who either scrapped them or utilised their boilers for stationary purposes.

No.3 and No.12 were sold to Hampton and Wheeler for £1275 for the two. Number 12 eventually went to the State Electricity Commission of Victoria and the fate of No.3 is not known at this stage.

Number 4 went to the Federal Capitals Commission for the construction of Canberra where it was eventually disposed of to the N.S.W. Associated Blue Metals Ltd. It was used by this firm until 1938 and scrapped in 1955. Its boiler went into a steam punt.

Number 5 went to the S.E.C. of Victoria (Yallourn) where it was joined by number 12. They were scrapped around the lates 1930s.

Nos. 6,7,8, and 9 went to the Australian Portland Cement company, Fyansford in Victoria where they ran until the 1960s. Nos. 7,8 and 9 were scrapped in 1964 and No.6 was donated to the Geelong Steam Preservation Society in 1968 where it now runs [20]

A list of engines and their disposal as far as is known follows and is correct as far as I know. Dates are fairly hazy in some cases.

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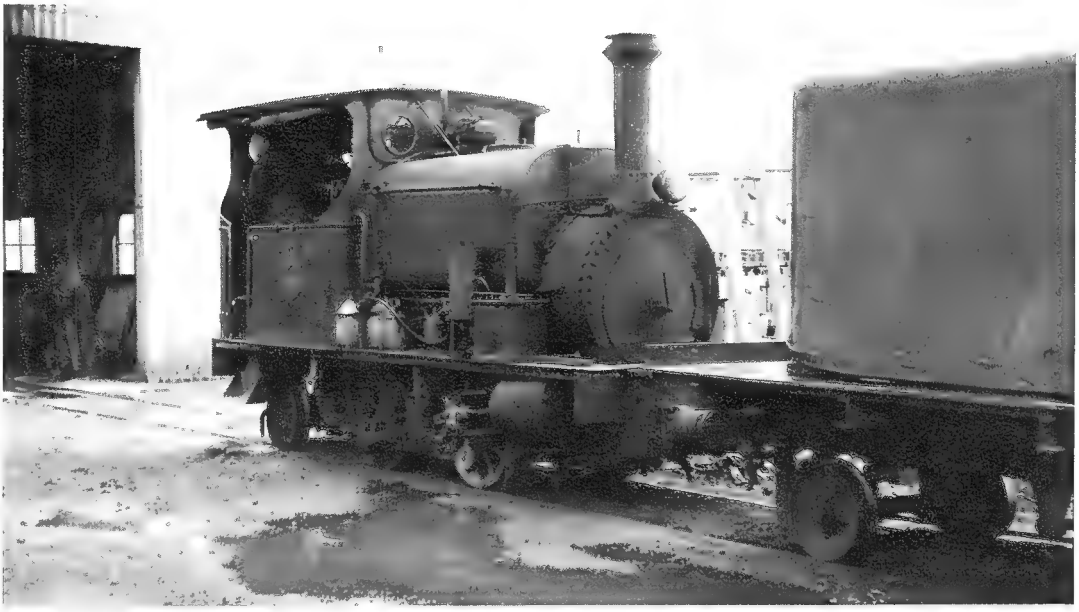
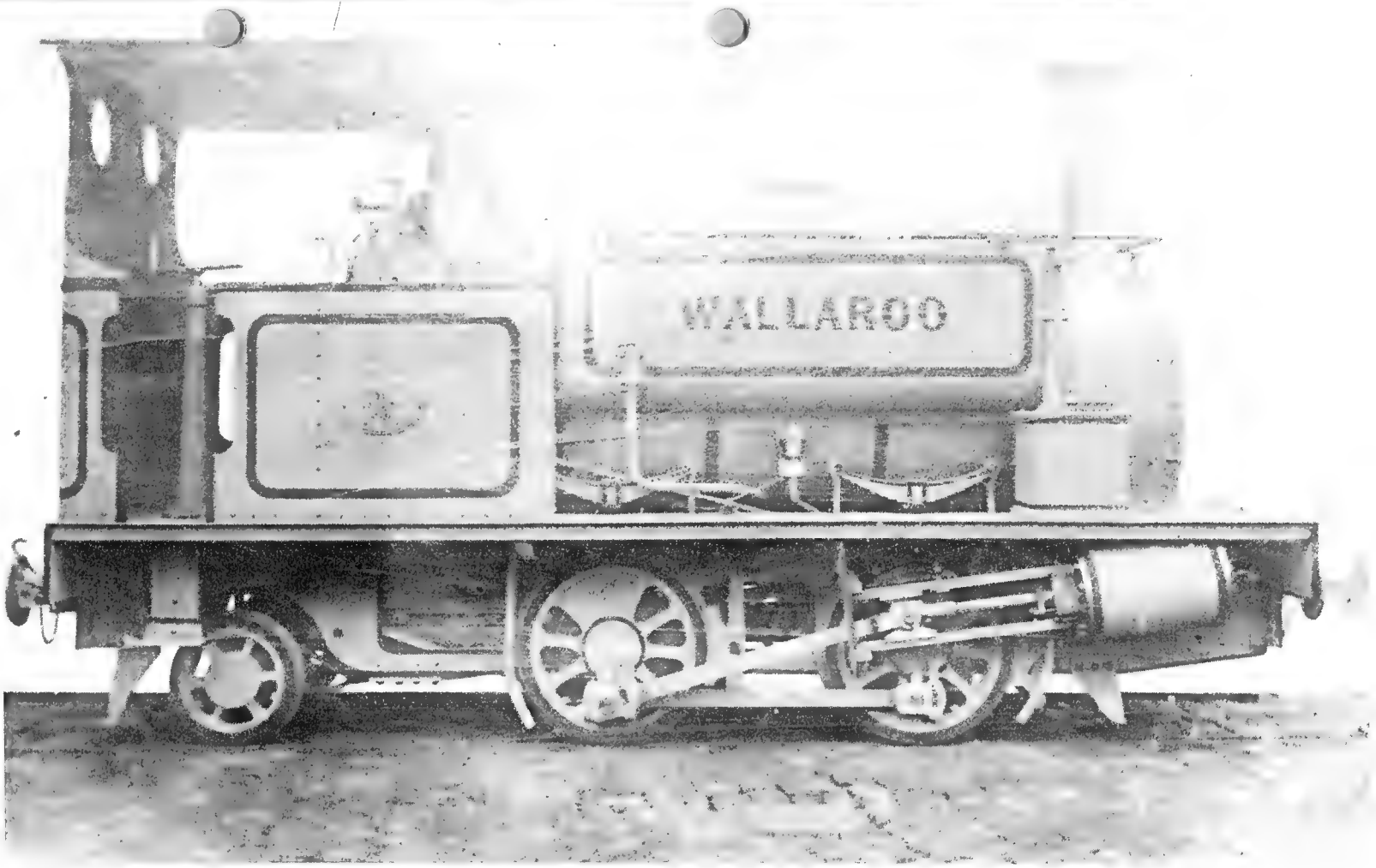
1. From notes of J. Harbison, Wallarco and *History of Copper Mining Wallaroo and Moonta 1860 - 1927.* (S.A. Dept. of Mines and Geological Survey Information pamphlet).
2. From notes of David Beck, Mowbray Point, Tasmania.
3. 'More about Old Lokeys', by 'Old Hand', *People's Weekly,* August 17, 1940.
4. Minutes of the Wallaroo and Moonta Mining and Smelting Company, 1890 -1892 (in South Australian Archives, Adelaide).
5. 'Locomotive No. 155 of South Australia' by Gifford Eardley, *A.R.H.S. Bulletin* No. 428, June 1973.
6. 'Moonta's first Lokey', by 'Old Hand', *People's Weekly,* August 3, 1940.
7. As for 4.
8. Letter from W.J. Spencer and Co. to Australian Portland Cement, Fyansford. (in Geelong Steam Preservation Society Archives).
9. As for 3.
10. As for 3.
11. As for 3.
12. As for 3.
13. As for 6.
14. As for 8, also *The Railway Foundry Leeds* by Ronald Nelson Redman and a letter from Hudswell Clarke and Co. to A.A. Gunsser (in Geelong Steam Preservation Society archives).
15. *The Railway Foundry Leeds* by Ronald Nelson Redman.
16. As for 15 and letter from Hudswell Clarke & Co to A.A. Gunsser.
17. As for 15.
18. As for 8 and 15.
19. As for 8.
20. From notes of David Beck and Bruce MacDonald.



Above Hudswell Clarke B/No. 646 of 1903, formerly W & M No. 6 stands outside the engine shed of its later owner, the Australian Portland Cement Company at Fyansford, Vic.

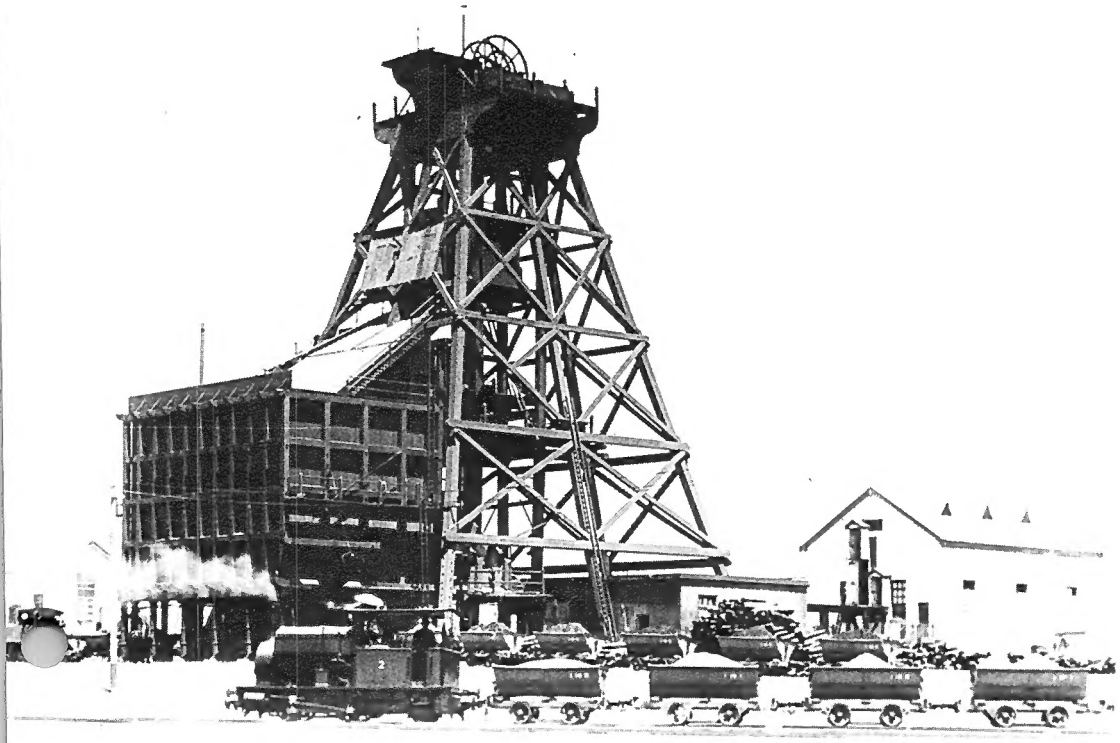
Below Hudswell Clarke B/No. 791 of 1906 stands derelict waiting its fate at Fyansford in 1964. It was scrapped a few months later.

Both photos: D. Beck.



Builder's photo of Hudswell Clarke B/No. 394 of 1892, named *Wallaroo.* It was the class leader of the 'Wallaroo' type engines. Photo: R. Butrims collection.

The vertical boilered 0-4-0 which *may* be the Kitson engine unit from the steam car. The photo is captioned 'Very old locally made steam engine', however note the builder's plate on the water tank. Photo: Wallaroo Branch, National Trust.



No. 2 passes the poppet head at Moonta. No. 1 (the Dubs) stands at the left of the photo.
Photo: State Library of South Australia.

References, another opinion

from Allan Watson

Asking yourself why was this said is a useful tool in analysing writings where an error is suspected. Dismissing the error as having been caused by a lack of references seems to be the stock procedure by some critics in *Light Railways* but I think that such a procedure is hopefully inadequate. If you cannot successfully account for an alternative view, you may eventually find yourself out on a limb if you adhere too strongly to your own opinions. One example is the number of Joadja locos arguement mentioned above - Giff has a problem, since he has not accounted for the four loco version at all, while Bruce has done fairly well by dealing with both. Again, in *Light Railways* No.49, some criticism on some writings about the McIvor Tramway, made no attempt at finding out the basis of the statements originally made, although the criticism presented an alternative view. This basis came forth in a subsequent letter in LR52, p.23, and stands up pretty well to the criticism that was levelled at it.

(Editor's comment: I disagree. Critical analysis of the letter in LR52 will show that the alternative view presented in it is based on one source only - an interview. In the same letter the writer dismisses interviews as a source of accurate information, which is itself a contradiction. You rightly stress the need for checking, so why be prepared to accept this evidence which was not supported by cross-checking? My comment in LR 49 was deliberately provocative in the hope that it would

encourage the submission of some *real* evidence supporting the existence of the Redcastle and Costerfield branches of the McIvor tramway. FES)

If we follow this 'why' step, one fact becomes very clear - far from causing these errors, referencing would not even stop most of them. I have said something like that earlier in this letter, so if you do not believe in the statement yourself, try the test on the following examples from the Shale Railways book.

To start with, there are errors beyond the control of the author. Take for instance the photo on page 28, which has been incorrectly captioned - that is my fault! While I cannot verify the correctness or otherwise of the text on this point, a slip occurred with the photo as no one on the production team knew anything about that loco other than it was supposedly at Hartley Vale. So I got the job of scanning the text - at that stage a single spaced carbon copy which was dreadful to read - until I saw the section about the MortsDock engine, hence the incorrect caption. After the book was printed, the first thing I saw on that page was the bit about the Fowler loco, and the error became very clear - too late! There are other production errors made by both the production team and the printer - errors that include a few transposed columns and at least one other incorrect caption (not my fault this time). Although he may have been working off the original of the carbon copy I refered to above, I am sure that a few errors would not have occurred had we supplied the printer with a decent, retyped, double-spaced text.

As for the Joadja locos, I still am unable to distinguish the differences between them (in their original condition) even after Bruce's letter, except for one - the loco in the photo on page 47, which, as Bruce says, is smaller than the others. I don't for one minute believe it to be the same as the loco (photo on p.50) that Giff nominated as being the first loco, even allowing for the obvious later alterations that Bruce describes in his letter. In fact, if it wasn't for Bruce's letter, I would have said that it was Giff's fourth loco. Giff had most of the photos that were eventually published and had somehow worked out which was which. The actual numbering of the locos in the captions was again caused by the production team.

I agree that some of the vehicles at Joadja were sprung, but I did not notice that point during production. Some errors were detected by me prior to publication, but these mainly concerned the maps. Some (but not all) were altered and some photos were included for no better reason than to illustrate possible problem areas. For instance the photo of Newnes Junction on page 122 shows a set of catch points on the branch line between the main and the siding. This agrees with the departmental diagram of 1906, but not with the map on page 126. Also at Torbane, the skip-way to the mine after following the north side of Mt. Airly, makes a short cut through another tunnel - see photos on p.110 and p.112. This is confirmed by the underground map of the area at the Department of Mines, but both the map on p.94 and text on P. 107, no tunnel is mentioned, rather, that the line went around the hill completely on the surface. While on Torbane, a poor copy of the photo on p.85 was submitted with the text as being the 'first' incline from Torbane works, back to the mines. I quickly pointed out, with the aid of of the better photo eventually published, that this was, in fact, Katoomba. Everyone agreed on that point and the map on page 80 was hastilly changed to suit. Just how much of the description of the skipway from Torbane works (see p.107) is based on the misinterpretation of this photograph. I am not sure. Giff said that it wasn't (in fact it looks like a direct copy from some old technical magazine), but I still have it on my extensive list of things to check.

I have already commented about leaving out certain bits of information. It must also be remembered that, at least with Joadja, latter day operations have been carried out on the sites of previous operations as described in the book. Some present day ruins halfway up the incline, and at the top, date from the World War II period, or so I have been told. Indeed, I suspect that the photo on page 68 was taken in the 1930s, thus predating these changes.

Bruce's last comment is on the track gauge in the photo on p.67. I offer the following information: The photo is part of a series, which includes those on p.40, p.42, p.45, & p.66. An early book including these photos labels them as Joadja and suggest the Government Printer as the source (hence the credits on the photos). From another source copies of the photos on p.42, p.45 & p.67 exist back to front - an old Government Printer trick of the period - and I now think that the photo on p.45 is wrong way round. Taking a close look at the photo in question however, the operation suggests the need for many thanks (another photo, not published, shows the same scene with even more tanks). Also the rail is of the omega section 'bridge rail' - hence presumably very light and making the rails small in relation to the gauge. Again, the unusual stub switch and distinctive point lever and rod appear again in the photo on page 45, and the gauge here is most certainly 3 ft 6 in. Finally the wagon on the far right on p.67 matches those on p.45 & p.42 Pretty conclusive, huh? Well I am certain that it is Joadja, but the track gauge still has me puzzled. I have another copy of the photo in question, showing more of the scene to the right. There are two men near the truck on the right (one can be seen in the book) and the gauge of the truck seems to be proportionally more than 3ft 6 in when measured against these men. Admittedly the men are not standing up straight, and maybe they might not be very big men. Anyone care to add some more comments?

So much for Bruce's letter, but I would like to add a few remarks of my own. I mention them mainly to raise another matter that has been pushed in *Light Railways* without any detailed explanations to it - the use of interviews.

At the risk of repeating myself, I suggest that there is nothing wrong in using interviews as such, for to take the worst possible case (and with *Light Railways* there are good chances of this happening),there will be the time when there is nothing else available. However, I would advise care when using this source. We have already seen (in LR49, bottom of p.8) that some people distrust

interviews - a distrust that, on proper analysis, is not completely without foundation. I would suggest that the real problem is not that interviews are used, but HOW they are used. Take for instance the following well tried formula:

1. Go into the field,
2. Seek out the oldest inhabitant,
3. Get his story,
4. Take his word as gospel.

Looks good on the surface, but there is a catch. There is nothing wrong with the first three steps, save that in step 2, there may be other people worth approaching. Step 4 is the culprit - the cause of innumerable past errors - and nullifies the effort that went into the other three steps. The solution ? CHECK ALL SOURCES! - as I mentioned earlier in this letter.

Unfortunately, *Light Railways* appears to be following the old tradition of giving possibly defective information through failure to check all sources. My main reason for coming to this conclusion is the general lack of detail in reference tables in this publication, particularly when interviews are used. 'Interviews' covers a large area of information; in its widest sense being all those sources which are previously unrecorded. At best it is the next best thing to having been there yourself; at worst, it is nothing more than idle rumour. Although most is generally somewhere in between these two extremes, information from the worse end of the scale is far easier to obtain than the better material. How careful are you? How much work are you prepared to do in your search for correct (as distinct from 'authentic') information? Don't you think that the reader should be told some of these details through your references?

Unreferenced articles and the use of interviews as used in *Light Railways* have a definite link: while the writer might know full well where his information comes from (and that, since he is using it, he believes in it as well), how does he pass this knowledge on to the reader? Unreferenced articles do not reveal much of their sources, but can't the same be said of some articles in *Light Railways* that use interviews? Usually in *Light Railways,* information from thise source has been referenced by little more than a name, that could be replaced by the letter "X" or "Anon" or some fictitious character, without most readers being any the less informed.

THIS is the real problem with articles such as *West Otways Narrow Gauge.* While many of these references of interviews fulfil the *Light Railways* requirement of proving authenticity (such as it is), they do little for anyone who might not know that such people existed, let alone follow them up. A reader depends on the author who useds interviews quite enough as it is, so surely it is not unreasonable to ask for some biographic information about the persons interviewed. The reader can then form his own opinion of the probable accuracy of the information obtained. Time usually removes the memory of names, so if you don't supply some details to a anme, you might find that in 20 or 30 years time some smart alec will dismiss your research because he can't identify your name to what he can discover elsewhere at that future date. To look again at WONG , I think that, although the reference table as published is somewhat of a mess, it does have certain bonuses. Mr Houghton, like me, seems to dislike repeating the same references again and again, so at least in the case of Mr Alford and a few other intervies, we do get some of this biographic information - all these additional remarks, gathered into one reference, would have been ideal.

Accuracy of all primary sources suffer from several variable factors, but somehow accuracy seems to be more variable with interviews than any other source that I can think of. One reason is that the interviews are not restricted to the defined, unaltered statements that characterise recorded sources. This can be an asset, in that there is no end to the possible information from interviews, but problems such as time, failing memories, opinions, and 'I wasn't directly involved, but I know all about it' play havoc with the researcher trying to assess such information for accuracy.

The Shale Railways book has no doubt used interviews (such as I have described above) and I would like to use as examples of the above problems, two instances where local, unrecorded sources have possibly been used, without checking. In both cases it appears that information has come from people not directly involved, while more accurate information could exist elsewhere in written sources.

The first concerns the opinion that the reason for the British Australian Oil Company folding was that it had German ownership and that it was 'closed down as a war prize' (see p.231). I have been unable to verify this detail from any source, other than it was operating during part of the war in which it was supposedly closed 'as a war prize'. It is wrong just because I can't verify it? No, we have to look deeper - Why was it said? Only basic research need reveal that at this time charges of German ownership were leveled at the British Imperial Oil Company - note similarity of names! What odds that some local has confused the two companies as being the same? I still can't *prove* anything, but at least I have a reasonable opinion, particularly since I can now account for the alternative view.

The other point concernes the in-situ retorting experiments by Fell (see p.210). My research has suggested that it *was* tried out. You see, there is a problem with in-situ retorting of shale and that is that shale expands when heated. When it does, the fire goes out, so the process cannot be kept up. Efforts to solve it this problem are still being investigated to this day in the U.S.A., but who discovered this unhappy problem? Technical literature point back to the days of Fell's experiments at Newnes, a discovery that could only have been found by actually trying to do it. Of course from the parts of this as yet incomplete research that I have found, the argument in the book does not stand up too well, particularly the opinion 'once the shale seam caught fire, there would be no means of controlling the extent of the conflagration'. However, there is that question - why was it said? If the writer (Eric Stephens in this case) obtained the story from people who worked there, he would have

certainly obtained a biased opinion from workers whose very jobs were at stake - after all, the whole aim of in-situ retorting was to eliminate the need for mining and manual retorting of the shale. Need I say more?

While on the subject of biased opinions, there is the possibility of bias in the authors themselves. The second sentence in the preface reveals certain opinions of Giff's that he made no effort to prove in the book or elsewhere. I suppose an author is entitled to make such statements in a preface, but be wary of it coming through in the text proper. Perhaps the ready acceptance of the version of the in-situ experiments by one of the authors (see above) is a reflection on his own sympathies. However, just to show that the same problem can extend to other sources, I would like to give the following classic example from a contemporary newspaper:

> 'The Sydney *Daily Teilegraph* (sic) a few days ago very properly expressed regret that the Commonwealth Oil Corporation should have found it necessary temporarily to close down its works at Newnes, but with that proneness for misrepresentation which becomes it as a press supporter of Mr - it ascribed the deplorable situation in which the Corporation finds itself to "the penalisation of absentee investors by the ... Government!" ...'

Somewhere, somehow, in all of that there is a biased opinion. Finding out exactly where it is, is just one of the joys confronting the thorough researcher, particularly when politics gets dragged into the argument. Is there anyone willing to make a snap decision on a thing like this? - and say that he is unbiased?

Well, even if you don't agree with me on all my conclusions (and I hope that your thoughts will at least be similar on most of them) I trust that the above will give you something to think about. *Light Railways* has shown us the start of referencing articles, but it is only just the start. So far referencing in *Light Railways* has done little more than identify sources, although even this has produced two useful results - making it easier to trace the source of some errors and providing some places for the newcomer to look for further information. However, there are three ways to improve this -

1. Your present aims could be achieved much more efficiently by (say) a Bibliography, rather than numbering references.
2. By using references to give more details to the reader, particularly where interviews have been used.
3. By writing references to demonstrate ACCURACY rather than AUTHENTICITY.

With unreferenced articles, we are usually left to make overall judgement on the article in question on just two things - the size of the article and our faith in the author. On this basis, *The Shale Railways of N.S.W.*, although it has some problems, fares up pretty well. Unfortunately, we still have to use the same basis for overall judgement on articles such as *West Otways Narrow Gauge* and *Lahey's Canungra Tramway* and most other articles in *Light Railways,* even though these articles now have references of sorts. Referencing will have to improve drastically, possibly on the lines I have mentioned above, before it will become widely accepted as a new basis for judgement. This is a worthwhile goal and I suggest that you work towards it. However, I would suggest that you achieve this by DOING, rather than TALKING about it. Indeed, some past criticism has been rather open-ended and tactless, which has not helped the cause of referencing very much at all. Once you have achieved a good referencing standard in practice, there will be no shortage of people wanting to follow your lead. Perhaps if you are really good, you might even change the ideas of those who presently ignore you altogether - and believe you me, there are quite a few of them!

Allan F. Watson
Sydney N.S.W.

EDITOR'S REPLY

By your terms 'authenticity' and 'authentic information' you apparently refer to the accurate republication of information from an old source, which might be right or wrong. You suggest this is the approach to research *Light Railways* is supporting. Not so. But, there are cases where publication of information of this type is justifiable. Some articles are not fully researched but are still worth publishing to encourage other to follow them up and produce something much more complete.

As you say we are pioneering the use of references, and their is room for improvement, but at least *we are trying.* Yes, biographical details should have been included in the references to people in WONG. We are still learning, still experimenting, we are DOING, rather than ignoring.

The need for checking was not emphasised sufficiently in my article in LR 49, but I did list seven basic categories of reference material and said that reseachers should use as many as possible sources from all seven categories. Cross checking of information would automatically follow if this was done. Item b on p.17 of LR49 also refers to the need to cross check.

With regard to *On The Margins of the Good Earth* (by D.W. Meinig, published by Seal Books at $1.95) the alleged numbered references in this book are in fact mostly footnotes, not references at all. There is a fundamental difference between a reference and a footnote. A reference gives a source of information, a footnote gives additional information which the author did not consider worth putting the body of the text. Footnotes as used in *On the Margins of the Good Earth* are in my opinion a distraction and nuisance to the reader. They make reading difficult and so drive readers from a good book to their television set.

Nobody has claimed that errors are caused by lack of references, but they do help prevent authors from making assumptions if they know they have to be able to support their statement.

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